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SPECIAL ARTICLE

Acupuncture in Traditional Chinese Medicine

—An Historical Review

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WITH THE RESUMPTION of political, diplomatic, scientific, and cultural relations between the United States and China a veritable epidemic of interest has developed in America in the seemingly most bizarre aspect of Chinese medicine. It appears that recent American visitors to China believed they had "discovered" acupuncture as though it were an entirely new phenomenon in the long history of Chinese medicine.

Indeed the American visitors, no matter whether they were diplomats, "China scholars," ping-pong players, or even physicians, were so overwhelmed by the dramatic use of acupuncture anesthesia in major surgical operations that they failed to realize that this was the only *new* aspect of acupuncture, whereas, in fact, the practice of needling dates back at least seven thousand years to neolithic times when the first needles were made of stone.

Thus acupuncture is only a part of a rich, intricate, and ancient medical system which must be appreciated in its totality in order to yield an explanation for the phenomena that were observed by the recent American visitors.

The origins of China's medical history are veiled in legend. Tradition ascribes the oldest Chinese medical work, the *Huang Ti Nei Ching Su Wen "The Yellow Emperor's Classic of Internal Medicine,"* to the authorship of Huang Ti, the Yellow Emperor, whose life span is said to have extended from 2697 to 2597 B.C. While it is not possible to state with any certainty when this great work was actually written down, a number of textual references and many touches of Taoist thinking point to the fourth or third century B.C. The form in which *The Yellow Emperor's Classic of Internal Medicine* has come down to us was given to it in 762 A.D. by Wang Pin of the Tang dynasty, the ablest and most vigorous of the many scholars who interpreted, commented upon, and elaborated this fundamental book, which is even now the basis of Chinese medicine.

It is significant in many ways that the work should have been attributed to an emperor whose reign was so early in the nation's history. Even at the time when it was first conceived, the *Classic* was obviously destined to be of lasting value, and its actual author, or authors, sacrificed the desire for personal glory to the supreme task of creating a work for eternity. This could best be done by ascribing the authorship to an exalted and ancient being, for China's reverence of antiquity dates back to its earliest days.

The naming of one of the ancients as an author was not without some justification, since the wording of the work makes it evident that its contents had been the intellectual property of the Chinese for a very long time before they were formulated and put down. The traditional dates of Huang Ti, the Yellow Emperor, make him a perfect choice for the hypothetical author of a work that stresses

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health and long life. He himself is supposed to have lived for one entire century, and this, according to the *Classic*, is the ideal span of life. But there is another, and perhaps the most interesting, purpose which can be inferred from the text of the *Yellow Emperor's Classic of Internal Medicine*, and even more from the form of the text itself: The work is written in the form of a dialogue between Huang Ti and his Prime Minister Ch'i Po, in which the Emperor—often in the humblest way—seeks instruction in all questions pertaining to health and the art of healing.

Although this conversation can hardly be considered an historical fact, the involvement of the names of these two distinguished personages is strongly indicative of the exalted place accorded to medicine in ancient China. It seems certain that the authors of the *Classic* considered knowledge of the forces that cause life and death worthy of an emperor and the art of healing to be the predominant responsibility of the elect. The grave obligation imposed by the mastery of the healing art finds expression in the Emperor's solemn vow: "I shall smear my mouth with blood and take an oath that I will not venture to receive this information were I to use it recklessly or neglect it."

Beyond doubt, the practice of medicine has often been connected with an awareness of the moral responsibilities of the practitioner, and the wording of the Yellow Emperor's vow brings to mind the Hippocratic Oath. But the *Huang Ti Nei Ching Su Wen* differs from the Hippocratic writings which form the basis of Western medicine. The latter were written to give practical advice to the practicing physician; the former goes far beyond the scope of a medical textbook, being a treatise on life itself.

In the modern mind, medicine is regarded as perhaps the most highly developed of all natural sciences. Religion, philosophy, thoughts on cosmogony and the course of the universe hardly influence the actions of the present-day physician; ethics is a professional guide that helps the doctor guard himself from professional mistakes, and perhaps against malpractice suits, but the patient's ethics, except in so far as it may influence his psychological well-being, is of no concern to the physician.

The immense difference in the ancient Chinese concept of the art of healing can best be illustrated by a short passage from the *Classic:*

> [The Yellow Emperor said] "I urge you to bring into harmony for me nature, Heaven, and Tao [the right way]. There must be an end and a beginning. Heaven must be in accord with the lights of the sky, the celestial bodies, and their course and periods. The earth below must reflect the four seasons, the five elements, that which is precious and that which is lowly and without value—one as well as the other. Is it not that in Winter man responds to Yin [the principle of darkness and cold]? And is it not in Summer he responds to Yang [the principle of light and warmth]? Let me be informed about their workings."
>
> Ch'i Po replied: "Truly a subtle question! It demands that one decypher Nature to the utmost degree."
>
> The Emperor exclaimed: "I should like to be informed about Nature to the utmost degree and include (information) about man, his physical form, his blood, his breath of life, his flowing and his dissolution; and I should like to know what causes his death and his life and what we can do about all this."

Here we see the essence of early Chinese medical thinking. A medical science did not exist by itself; the art of healing was part of philosophy and religion, both of which propounded oneness with nature and the universe.

The Yellow Emperor's Classic was written long after theories of cosmogony and the workings of the universe had been conceived and become formalized. The work does not contain basic explanations of phenomena, since the reader was expected to be familiar with the most important concepts of philosophy and religion. Before these concepts are explained here, it must be stated that there was little or no distinction between religious and philosophical thought in ancient China. Nor does the word religion in this context refer to any of the three major cults: Confucianism, Taoism and Buddhism. To be sure, certain elements of Confucian and Taoist doctrine can be found in the philosophic-religious thought of the *Classic*, but they are representative of the earlier writings rather than of the later, formalized cults.

In the passage of the *Classic* quoted above, mention is made of the three essential features which form the basis of all reasoning underlying Chinese Universalism in general, the *Huang Ti Nei Ching Su Wen* in particular, and finally Chinese medical thinking in its entirety. These three features are

the *Tao*, the *Yin* and the *Yang*, and the five elements mentioned in the dialogue are water, fire, wood, metal and earth, all of which have their place and function in the Chinese concept of the creation of the world. Since Chinese traditional thinking conceives of man as composed of the same elements as the universe and as functioning along the same principles as the macrocosm, it might be well here to summarize briefly the Chinese concept of cosmogony.

That this concept was the result of philosophical rather than religious thinking becomes immediately evident when one realizes that creation was never attributed to a superior or superhuman being. It was thought that the world had created itself, driven by Tao, an abstract motivator, which remained active and turned into a moral guide, once creation was accomplished. It was Tao, the Way, that caused the original state of chaos to divide into two forces, known as the Yin and the Yang, the female and the male, the negative and the positive elements. Even after creation was completed, Tao remained effective in guiding the functions of everything within the universe, while Yin and Yang in their ebb and flow of opposition and attraction to each other maintained all things and beings of the newly created world in their proper balance and harmony.

During creation, the Yin and the Yang brought forth the five elements: water, fire, wood, metal and earth. These formed the material substance for everything in this world. The correct proportion of these elements was preserved by the workings of the Tao and the interaction of the Yin and Yang.

In the macrocosm the visible results of perfect balance were the change from day to night, the rising and the setting of the sun, the waxing and the waning of the moon, the unchangeable sequence of the seasons, the planting and the growing of the crops. Droughts and floods, failure of the crops, and other natural phenomena were indications of a disturbance in the balance of nature.

Man, who was created with the universe and in its image, owed his health and hence his life, to the harmony of natural forces; if this harmony was upset, the result was disease and death. But while the macrocosm of the universe was left to the course of Tao and the natural forces, it was up to man to shape his fate by compliance with Tao, the Way, and thus to keep the proper balance of Yin and Yang, the two opposing forces.

The Yellow Emperor's Classic is the first book that explains to man what he can expect by living according to the Tao and thus according to nature, and how he can learn to adapt his life to this system:

> Just as the breath of the blue sky [is calm], so the will and the heart of those who are pure will be in peace, and the breath of Yang will be stable in those who keep themselves in harmony with nature. Even if there are noxious spirits they cannot cause injury to those who follow the laws of the seasons.

But the book also stresses the effects of disobedience to the Tao, the resulting disease and premature deterioration:

> Those who fail to preserve this [good conduct] will have their nine orifices closed from the inside, and the development of their muscles and flesh will be obstructed from the outside, and the breath of protection will be lost to them. This then is called: "to injure one's own body and to destroy one's own force of life."

The preceding quotations are evidence that the *Classic* was directed to the educated layman as well as to the physician, but for the latter it has much specific advice which reaches its highest wisdom in the following exhortation:

> . . . the sages did not treat those who were already ill; they instructed those who were not yet ill. They did not want to rule those who were already rebellious; they guided those who were not yet rebellious. To administer medicine to diseases which have already developed and to suppress revolts which have already developed is comparable to the behaviour of those persons who begin to dig a well after they have become thirsty, and of those who begin to cast weapons after they have already engaged in battle. Would these actions not be too late?

It is easy to see why the Chinese conceived a naturalistic philosophy and clung to it for thousands of years. They have been and still are to a large extent an agricultural people, totally dependent upon nature's immutable course. Thus it was natural for them to think of themselves as one with the universe which provided them so directly

with their livelihood. Because of this it was possible for the theories of *The Yellow Emperor's Classic* to become the basis of all subsequent medical writings and to survive up to the present day.

One may wonder how this transfer of the concepts of the macrocosm to the body of the human being was brought about. First of all, it must be said that this could have taken place only in a society that venerated the ancestor—and hence the dead—, that considered the study of anatomy a desecration of the dead, and the performance of surgery a permanent disfigurement and an infringement upon the sacredness of the body. In such an atmosphere of thought, the human structure and the physiological processes could not be investigated; they had to be taken for granted. It will be realized that under these conditions it was possible to explain human anatomy and physiology by an analogy to the universe and in terms of the theories of Tao, Yin and Yang, and the five elements. The following discussion will reveal that such analogies were not carried out altogether arbitrarily, and that occasional flashes of insight and wisdom went into their making.

In accord with the prevailing taboos, *The Yellow Emperor's Classic* and most succeeding Chinese medical works restricted their anatomical investigation to a vague study of surface anatomy. Thus it was said that the exterior of the body consisted of skin, flesh, muscles, tendons and bones. In addition there were nine orifices, provided by the eyes, the ears, the nose, the mouth, the anus, and the urethral openings. The description of internal structure and organs was as follows: Man was composed of "intestines," the five *Tsang*, or storing organs, and the six *Fu*, or eliminating organs. The five *Tsang*, which were held to be more important than the eliminating organs, were the liver, the heart, the spleen, the lungs, the kidneys. The six *Fu* were the stomach, the large intestine, the small intestine, the urinary bladder, the gall bladder, and the "three burning spaces"—an imaginary organ, whose three components were held to be distributed over the upper, middle and lower parts of the body. The storing and eliminating organs were connected by a system of vessels of which there were two kinds: those which carried blood and those which carried air or a vital pneuma. The latter have since become known as *meridians*.

This is a bare outline of the existing anatomical descriptions, but it may be sufficient to establish a parallel with the components of the universe and to form a basis for theories on the functions of the organs. In the *Classic*, the Yellow Emperor is quoted as saying:

> "Covered by Heaven and supported by Earth, all creation together in its most complete perfection is planned for the greatest achievement: Man. Man lives on the breath of Heaven and Earth and he achieves perfection through the laws of the four seasons."

The analogy between the human being and the four seasons was fortified by a preconceived numerical concept of the components of man: thus the body was believed to consist of 365 individual parts, obviously corresponding with the 365 days of the year; the number of main vessels or meridians that carried blood and air was 12 pairs and thus conformed with the 12 months; and lastly there were the *Tsang*, the five main organs representing the five elements.

Physiology, like anatomy, was based on the theories governing the creation of the world. The functioning of the body depended upon the two forces that created the world and men, the Yin and the Yang. While Yang, the male or positive principle predominated in man, and Yin, the female or negative principle, predominated in woman, neither of these forces ever existed alone, but a certain proportion of both had to be present in every well-functioning human being. These two ever-active forces, alternately opposing and supplementing each other, were held to exist within all parts of the body and to circulate through the vessels that carried blood and pneuma. Pathological conditions arose out of abundance of either the Yin or the Yang, obstruction of the flow of blood and especially the pneuma. All these deficiencies and obstructions disturbed the balance of the organism as a whole, but usually affected one particular organ.

The concept of a disease entity as it is known to modern medicine did not exist in traditional Chinese thought. Some specific fevers were known and even distinguished according to a vague groping toward a knowledge of etiology, but even the possible causes of disease were subordinated to the general scheme of the universe. Thus, the five atmospheric conditions — wind, heat, humidity,

dryness and cold — closely related to the five elements, could bring about such diseases as "injuries of the cold" (this group included typhoid fever), "injuries of the heat," "the wind within," and "humid warmth." Smallpox, leprosy and various forms of intermittent fevers were also believed to arise out of atmospheric conditions. But it was generally believed that whatever immediate cause was held to be responsible for a particular disease, the patient had laid himself open to such an attack by a major infringement of Tao, the Way, and the invariable result was a disturbance of the balance of Yin and Yang.

It is noteworthy that *The Yellow Emperor's Classic* does not present these doctrines in flat statements, but that they are clothed in symbolic imagery which compares the functioning of the body to that of a state. The relations of the various organs to each other are likened to those of the high officials, and all are dependent upon the heart, which is described as "the minister of the monarch who excels through insight and understanding." It may well be that the following paragraphs were meant to carry a political as well as a medical message, although the text is presumably concerned with the body:

> When the monarch is intelligent and enlightened, there is peace and contentment among his subjects; they can thus beget offspring, and bring up their children, earn a living and lead a long and happy life.
>
> But when the monarch is not intelligent and enlightened, the twelve officials [the organs of the body] become dangerous and perilous; the use of Tao [the Right Way], is obstructed and blocked, and Tao no longer circulates warnings against physical excesses.
>
> Afflicted are those who dissipate; they become nervous and startled. But those who are aware of their needs and desires are encouraged, and as an expression of this encouragement they become peace-loving and virtuous.

By means of these seemingly abstract theories, the ancient Chinese arrived at two extremely important conclusions: first, that disease is rarely localized, but generally affects the entire human being; and, second, that disease is often associated with behavior and with a feeling of guilt, derived from the infringement of a moral law. *The Yellow Emperor's Classic* abounds in statements concerning the effect of emotional states on health which can truly be termed precursors of psychosomatic medicine. It might be well here to quote some of the most pertinent ones:

> The Yellow Emperor said: "Man's place of residence, his motion and rest [his circumstances of life], his courage and cowardice—do they not also cause change within the vascular system [pulse]?"
>
> Ch'i Po answered: "Yes, in general, man's fear and apprehension, his passion [anger] and his suffering, his motion and his rest, they all cause changes.
>
> "Therefore it is said: In order to examine the course of a disease one must investigate whether man is courageous or nervous and cowardly, and one must examine his bones, flesh, and skin and then one can know the facts which are necessary for the methods of treatment."

From the preceding discussion it is not to be wondered at that even the infringements of the laws of behavior were systematized to the point of absurdity, as may be seen in the following sentences:

> Those whose demeanor is dissolute and licentious get a disease of the lungs. Those who are lazy and full of apprehension and fear, have difficulties in breathing, emanating from the lungs. Those whose demeanor is immoral and dissolute will injure their hearts.
>
> Thus in Spring and in Fall, in Winter and in Summer, during the four seasons and during the periods of Yin and Yang, diseases are created, that are caused by faulty practices and transgressions which have become habit.

But even these schematizations do not detract from the basic wisdom which realized the existence of a strong bond between the human body and the mind. With such principles in mind the ancient Chinese physician functioned not only as a healer of disease, but even more as a moral guide who helped his patients to acknowledge and rectify their infringements of moral and natural laws. Being a judge of man's behavior as well as of his health presupposed a high moral and ethical attitude on the part of the early Chinese physician and a fairly well-organized state of the medical profession. And indeed, in the *Chou Li*, the "Rites of the Chou," whose dynasty flourished between 1122 and 221 B.C., we find the outlines of a medical organization with a well-defined hierarchy graded according to achievement and therapeutic success.

It is clear that neither the knowledge of a disease as affecting the entire human being, nor the realization of a psychic factor as a cause, absolved the Chinese doctor of making a diagnosis of the nature and location of any particular illness. It is in the field of diagnosis that we find the least trace of realism and the greatest amount of schematization.

The main diagnostic method employed by the Chinese physician of antiquity, and still that of the traditional Chinese physician of today, is the taking of the pulse. This means of diagnosis is so intricate that it required several chapters in *The Yellow Emperor's Classic*, which were elaborated and expanded by Wang Shu-ho (about 280 A.D.) into a separate treatise of ten volumes, entirely given over to the study of the pulse. The importance attributed throughout the centuries to pulse diagnosis can be gauged by the fact that from the time of Wang Shu-ho until today at least 156 additional books have appeared on the subject.[1] The instructions concerning the pulse contained in *The Yellow Emperor's Classic* are briefly summarized here.

The pulse, it was said, consisted of six pulses on each wrist, each connected with a particular organ of the body, and each able to record even the minutest pathological changes taking place within the body. The procedure of palpation differed according to the sex of the patient; the physician first examined the pulses of the right wrist of female patients and those of the left wrist of male patients. By means of the pulse the physician was supposed to be able to judge the site and the state of the disease, its cause and duration, whether it was chronic or acute, and whether the patient would recover or die. When we realize that the seasons, the time of day, weather conditions, and the age of the patient were held to cause differences in the sounds of the pulse beats, we become aware of the immense difficulties confronting the Chinese physician. And yet, their diagnoses were surprisingly accurate. Dr. Edward H. Hume, who was present at a number of such examinations, tells us that "many visits to patients in company with proficient Chinese physicians of the old school have shown . . . how almost uncanny is their power of recognition of organic conditions through pulse observation alone."[2] Dr. Hume's statement finds corroboration from many other Western physicians who were astounded by the same phenomenon. A few selections from *The Yellow Emperor's Classic* may serve to illustrate the preceding discussions:

> The way of medical treatment is to be consistent. It should be executed at dawn when the breath of Yin has not yet begun to stir and when the breath of Yang has not yet begun to diffuse; when food and drink have not yet been taken . . . when vigour and energy are not yet disturbed — at that particular time one should examine what has happened to the pulse.
>
> If it were not for the excellent technique and the subtlety of the pulse one would not be able to examine it. But examination must be done according to plan and the system of Yin and Yang serve as basis for examination. When this basis is established, one can investigate the twelve main vessels and the five elements that generate life. Life itself follows a pattern that was set by the four seasons.
>
> Those warm and genial days of Spring lead up to heat of Summer, and the anger one might feel in Autumn makes way for forgiveness and mercy which one feels in Winter. This change of the four seasons influences the upper and lower pulses.

Diagnosis of the pulse was supplemented by a study of the patient's complexion, the changes of which were held to be indicative of the future development of the disease. The examination of the colors of the various parts of the body was carried out according to a fixed system of correlations between colors and "intestines" rather than according to actually observable phenomena. The ancient Chinese physician also interrogated the patient and his family and — interestingly enough—interpreted the patient's dreams in relation to his illness.

A study of therapy as advocated in the *Classic* indicates the ever-present preoccupation with the laws of the universe:

> In order to effect a cure and relief, one must not err towards the laws of Heaven, nor towards those of the Earth, for they form a unit.

Accordingly, the physician was told that the five elements were paralleled by five methods of treatment. Since, however, disease was not a natural phenomenon—the earliest and wisest inhabitants of the earth were reputed to have been entirely free from it because of their virtuous mode of life—these five methods were not developed simultaneously; they evolved successively

with the increasing lawlessness of succeeding generations.

The *Classic* reports that the first method of treatment evolved by the Chinese was the cure of the spirit. This method, strangely reminiscent of the most modern medical theories, consisted in helping the patient find the right way of life, that is, in finding contentment, repose and in avoiding excesses and ambition: "Those who are satisfied with their station in life will rise above it."

The second method of treatment was the nourishment of the body. To do this correctly, the physician had to consult the five elements and the various factors related to them. The *Classic* states that "each of the diseases of the four seasons and the five main organs reacts to that one of the five flavours to which (each of the seasons and the the organs) responds." The five flavors—sour, bitter, sweet, pungent and salty—were held to be related in this order to the liver, the heart, the spleen, the lungs and the kidneys, and were supposed to have in this connection a binding, strengthening, retarding, dispersing and softening effect upon the intestines. This rather rigid scheme of concordances of the five flavors was softened by the statement that in general the produce of each season and each particular region constituted the ideal nourishment.

The next method of treatment advocated in the *Classic* concerns the true effects of medicine. Here again we are referred to the five predominant qualities contained in each of them; but the subject is treated too generally to repay detailed study. Beyond the mention of the existence of medicines, which were derived from the animal, vegetable, and mineral kingdoms and held to represent a mixture of Heaven and Earth, we do not find an elaboration of the matter.

The Yellow Emperor's Classic, like most other later works dealing with internal medicine, does not contain much pharmacological information, which is reserved for the numerous treatises specifically devoted to the description of China's famous materia medica. The earliest of these *Pen Tsao* or "Herbal" was attributed to the authorship of Shen Nung, the "Divine Husbandman," another of China's legendary emperors.

The fourth method instructs the physician on how to combat disorder of the bowels and the viscera; this was done mainly by massage and by insistence upon proper evacuation of the bowels and elimination of the waters.

The methods of treatment so far discussed presuppose an attitude of watchful waiting on the part of the physician. The guidance towards proper conduct, the establishment of a correct diet, the designation of a few medicines and the insistence upon daily evacuation appear to us as an encouragement of the healing power of nature rather than as active means of curing disease. It is the fifth method of treatment, however, that enables the physician to take an active part in combating illness; and, since this method represents the most important expression of universalistic philosophy as applied to actual medical practice, I should like here to devote some time to its description. This method is the application of acupuncture and moxibustion.

Acupuncture

Acupuncture, also known as "needling," consists in the insertion of needles of various shapes, sizes and materials into specific points of the body, the extremities and even the head. The word *acupuncture* is derived from the Latin *acus* (pointed or sharp) and *punctura* (puncture) and thus means the puncturing of bodily tissue with sharp needles. These needles may be withdrawn immediately, left *in situ* for some time, or rotated a number of times, depending on the nature of the ailment. Moxibustion, or moxa treatment, is practiced by applying to the skin combustible cones of the dried and powdered leaves of Artemisia vulgaris; these cones are then ignited and allowed to burn down to the skin until a small blister forms.

The word *moxibustion* is a contraction of *moxa* and *combustion*. Moxa is derived from the Japanese expression *mogusa*, which means "burning herb." Moxibustion was enthusiastically received in Japan where it is still practiced in its original form as an alternative or supplement to acupuncture, regardless of the burn scars that have resulted. In China, on the other hand, moxibustion has continued in a somewhat attenuated form. Instead of bringing the burning moxa stick so close to the skin that a blister results, the moxa has gradually been removed from the skin, and is now used almost exclusively for the heating of the needles or the warming of the acupuncture points from a distance.

Both remedies are of great antiquity and must have been well known as early as the time of the composition of *The Yellow Emperor's Classic*, for the book deals with refinements of procedure, rather than with basic instructions concerning

their use. The cosmological significance of both these methods of treatment lies in the location and number of acupuncture and moxibustion spots, and in the motivation given to their use.

In order to understand the theories behind acupuncture and moxibustion we must bring to mind again the basic concepts of pathology and physiology as discussed above. Disease was believed to arise out of an imbalance of the dual force Yin and Yang, leading to an obstruction of *Ch'i* the vital essence, within the 12 pairs of main vessels which were held to be connected with the various parts of organs of the body. Significantly, there are 365 points where these vessels rise to the surface of the body and thus present the spots for acupuncture and moxibustion. From among these the modern Chinese acupuncturists have selected those that have proved to be most efficacious. The effect of the insertion of the needles and the blistering of the moxa cone is to create openings for the relief of congestion of *Ch'i*, caused by a plethora of Yin or Yang. According to the *Classic*, acupuncture and moxibustion were applied for a vast variety of complaints, and especially for acute pains produced by rheumatism, gout and neuralgic conditions, abdominal cramps and colics; both were recommended in cases of mental disturbance:

> Ch'i Po said: "In order to puncture one must enter the meridian repeatedly, and one uses the moment of inhalation to push the needle. Hence, in order to nourish and care for the spirit and mind one must be aware of the appearance of the body: whether it is fat or thin, whether the blood, the vital essences, the constitution and the breath are flourishing or deteriorating."
>
> The Emperor said: "How wonderful this reasoning! To bring into agreement man's body with Yin and Yang, the two principles in nature, and with the four seasons; his echoing of want and fullness, his response to the most subtle influences. . . ."

The description of these various methods of therapy concludes the discussion of the fundamentals of Chinese medicine. But these fundamentals, conceived in the dawn of China's existence and recorded centuries before our era, have not been relegated to the realm of history. In spite of the advent of Western practices, the Chinese have never completely ceased to employ their own art of healing, mainly because it continued to fit into their specific philosophy of life, but also because it appeared that in frequent cases it was good medicine. Even though many Chinese doctors and patients of more recent centuries may no longer have been consciously aware of the cosmological basis of their treatments, works like *The Yellow Emperor's Classic* and the many that followed provided such detailed methods of procedure that individual reasoning was unnecessary.

The thought of man's origin and composition as part of the universe never, however, quite left the Chinese mind and was the only existing theory until the introduction by Western scientists of the study of anatomy and the practice of surgery. Even in Japan, where Chinese medicine was adopted in the sixth century A.D. and retained until well into the sixteenth, there can be found a deep-rooted and unquestioning belief in the analogy between man and the universe.

If the ancient theoretical foundations were kept alive, it is even less surprising that the methods of treatment are still practiced in China and Japan. The examination of the pulse has remained the main diagnostic method of the traditional Chinese and Japanese practitioner. And, while the materia medica has become richer and more varied than had been described in *The Yellow Emperor's Classic*, it is still applied according to the same principles. Acupuncture and moxibustion, too, have remained in uninterrupted use. A Chinese treatise, the *Ming T'ang Ching* (probably composed during the Sung dynasty, 960-1279 A.D.), translated into Japanese as the *Mei-do-kiyo,* elaborated on the instructions given in *The Yellow Emperor's Classic*. The most graphic description of these practices from a Western point of view is contained in *The History of Japan . . .* 1690-92 by Engelbert Kaempfer, a German physician who was attached to the Dutch settlement in Deshima in the late 17th century.

For the past decades the preoccupation with ancient Chinese medical methods no longer seems to be the exclusive domain of the indigenous practitioner. Articles, books and numerous personal communications bring to light the fact that physicians all over Europe long ago began scientific investigations into the actual value of these methods which have remained in practice for more than five thousand years.

The New Interest in Acupuncture

Suddenly in 1972, the flurry of interest in the United States in the practice of acupuncture has induced innumerable desperately ill patients to seek this apparent cure-all, and, what is more important, the medical profession of this country has begun to evince a strong interest in the methods and scientific basis for the success of acupuncture therapy and surgical analgesia.

In all probability none of the often-mentioned theories on the neurophysiological mechanism of acupuncture is the last word in the explanation of the needling therapy, and it is entirely uncertain whether it will eventually be one or several investigators in the People's Republic of China or American researchers who will succeed in finding the one valid scientific basis for this mysterious operation which so far has eluded them. The immediate and perhaps somewhat simplistic response of many American physicians who are not themselves familiar with acupuncture has often been that it can simply be equated with hypnosis, that is, suggestion. That this "explanation" can hardly be considered the correct one is evident from the fact that acupuncture is effective in the treatment and relief of pain of infants in the first few months of their lives, and also of a great variety of animals. Neither infants nor animals have as yet been known to be hypnotisable.

If the history of *The Yellow Emperor's Classic* is compared with that of the *Corpus Hippocraticum*, which originated at about the same time, a curious and somewhat contradictory development may be noted. The works of the Greek tradition were composed to serve as textbooks for the practitioner, yet the practical value of their contents was superseded centuries ago. Apart from their significance for the medical historian, the value of these works has for centuries consisted in creating for the Western physician the moral and ethical concept of the ideal physician. On the other hand, from the preceding discussion it should be evident that China's earliest book concerned with the art of healing was never meant to be a mere textbook of medicine, but rather a treatise on the philosophy of nature; and yet it was taken over by physicians, not as a guide towards an ideal of life, but as a help for the actual practice of medicine. It is not within the scope of this paper to make further comparison between the literary monuments of two such divergent traditions, but it is hoped that the modern doctor, whose spiritual ancestor is Hippocrates, and who today is trained in clinical research and the psychosomatic aspect of disease, will not fail to discover the philosophical wisdom of *The Yellow Emperor's Classic of Internal Medicine.*

Speculation on the Success of Acupuncture

Since Western medicine cannot but speculate about the scientific secret of acupuncture, several theories have been suggested that might account for the uncanny success of the oriental procedure. Here we must draw on the work of men of such scientific sophistication as Rasmussen and Penfield who showed exactly 25 years ago that each area of the surface of the skin is represented by a corresponding area in the cerebral cortex. (Rasmussen, T. and Penfield, Wilder: "Further Studies of the Sensory and Motor Cerebral Cortex of Man." *Federation Proceedings* 6:452-460, 1947.) This correspondence between skin and cerebral cortex probably also accounts for the beneficial effect of massage, another practice which originated in the Far East.

Divested of concepts of Yin and Yang and "vital essences," the idea of dermal representation in the cerebral cortex of internal organs may be far less fanciful than it appears at first glance.

While the Rasmussen-Penfield theory was not specifically intended to explain acupuncture, but may well be applied to it, other investigators have concentrated upon finding a physiological explanation for acupuncture analgesia.

As was to be expected, the arrival of modern Western scientific medicine in China reduced the importance of the disequilibrium of Yin and Yang as pathogenic factors and made it desirable to look for scientific reasons for the efficacy of acupuncture treatment. This is all the more the case since acupuncture has reached the Western World, and especially the United States. Most frequently quoted among the latter day investigators are R. Melzack of McGill University and Patrick Wall of the University College in London (*Science* 150, 1971, 1965) whose studies on the physiology of pain yielded the *"gate control theory."* (This so-called Melzack-Wall theory suggests that the pathway of pain to the brain is determined by a "gate control cell" in the substantia gelatinosa in the dorsal horn of the spinal cord.)

Although a certain element of scientific speculation remains in this proposition, a connection with acupuncture was developed on the basis of

the Melzack-Wall theory. According to reports of recent visitors to the People's Republic of China, Chinese investigators have been proceeding along this line of thought in considering the role of cortex, thalamus and hypothalamus, without, however, arriving at demonstrable conclusions. In the United States, two scientists in Michigan, Dr. Calvin H. Chen, a professor at Wayne State University and assistant medical superintendent at Northville State Hospital, and Dr. Pang L. Man of the same institution have postulated a concept to establish the thalamus as a second gate and have hence termed their hypothesis the "two-gate control theory."

It is important also to note that the latter theory states that acupuncture needles produce only a mild, fairly painless stimulation, causing the gates to be closed, so that painful sensations cannot pass through.

(Further speculations appeared in an article by H. C. Tien, entitled "Acupuncture Anesthesia: Neurogenic Interference Theory." *World Journal of Psychosynthesis* 1972, pp. 36-41.)

Such sophisticated deliberations were impossible to achieve by the traditional Chinese practitioners of acupuncture.

Without knowledge of the nature and the function of the central nervous system and the brain, which, as indicated before, was not considered among the major organs of the body, the early Chinese were incapable of fathoming a relationship between certain points on the skin and the cerebral cortex; therefore, they had to work with the concepts inherent in their philosophical theories of man's bodily function.

Still, in all probability none of the theories on the neurophysiological mechanism of acupuncture will be the last word in the explanation of the needling therapy. It remains to be seen whether a valid scientific basis for this mysterious operation will be established by investigators in the People's Republic of China or by Western researchers. So far it has eluded all students of acupuncture. In the meantime, however, a superabundance of clinical material at hand seems to demonstrate that acupuncture has proved effective in the alleviation of pain to untold multitudes of sufferers for thousands of years of therapeutic practice.

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